

## REMARKS

Reconsideration of the subject patent application is respectfully requested.

While the Applicants' attorney and the Examiner briefly discussed the Final Office Action and the "slurry billet" issue, no agreement was reached as far as allowable claims and it was suggested that Applicants file a response for further consideration.

The Examiner's Supervisory Primary Examiner (SPE) was asked to participate in a telephonic interview, but decided to decline this opportunity. The reason stated by the Examiner was the SPE's unfamiliarity with the subject matter of the claimed invention.

At this time, claims 1-19, 24-26, and 31-38 are pending and all of these claims have been rejected under 35 U.S.C. §103(a) based upon the Brauer et al. ('487) patent. The Examiner has stated that the reasons for the rejection of all claims are "the same reasons as set forth in the last office action". However, Applicants' response dated April 17, 2003 addressed a number of deficiencies in Brauer et al. based upon the recited structural elements and relationships in the pending claims. The Examiner concluded that Applicants' arguments were not persuasive.

It is Paragraph 4 of the Final Office Action that Applicants find to be the most troubling. In Paragraph 4(a), reference is made to claims 10-15, 25, 32-34, and 36 and Applicants' concern that no specific comments were ever offered by the Examiner in the prior Office Action as to why or how the specific elements of these claims were deemed to be obvious. Clearly, there is nothing even similar nor anything even suggested by Brauer et al. in this regard. In reply, the Examiner has now discussed claims 10-15, 32-34, and 36, but the extent of the comments are little more than a one sentence

pronouncement that these claim elements are obvious. For months now, Applicants have asked for the Examiner to provide other references that can be relied upon to actually prove the validity of the Examiner's opinion in this regard. If these claim elements are so clearly obvious, then why is it so difficult to produce relevant prior art references?

In Paragraph 4(b), the Examiner discusses that "gradual" is a relative term and that, in his opinion, Brauer et al. and the claimed invention are considered to be the same or similar. The most cursory examination of Brauer et al. shows that the semi-solid slurry 68 exits the stirring zone through the opening 66 and is directed to casting chamber 70 (column 8, lines 36-38). Brauer et al. goes on to state "[W]hen a sufficient quantity of slurry is in the die cavity 70, a ram 74 activated by a drive device 76 forces the slurry into the shaped charge liner mold 78" (column 8, lines 40-43). The opening few words of this quoted passage are particularly instructive. It does not say that "when the slurry billet" is in the die cavity, but it does imply that the initial quantity of slurry that is deposited in the die cavity 70 is not sufficient and that we must wait until such time that there is a "sufficient" quantity. It is absolutely clear that the trickle of slurry out of opening 66 does not instantly accumulate in sufficient quantity for the casting process, but rather the accumulation of slurry is gradual and, over time, when a sufficient quantity has been delivered, the process can proceed. This is why Brauer et al. must have insulated walls and may additionally require induction heating means in order to prevent solidification of the slurry. Why might it solidify? If we want to talk about what is truly "obvious", it is obvious that the early portion of slurry that trickles out of opening 66 into chamber 70 will start to solidify while the process waits for more slurry to be delivered. This is what anyone would understand as "gradual".

With a single shot slurry billet as claimed by Applicants, there is no gradual trickle, but instead the entire volume or mass of slurry that is required for the desired casting step based upon the part geometry is deposited in the shot sleeve as a “single shot” slurry billet. If one simply reads page 1 of the specification, it will be clear how these terms are defined for the application and how the terms must be interpreted. If one chooses to ignore the specification, consulting a dictionary might be helpful. A “billet” is defined for the metalworking art as a “comparatively narrow, generally square, bar of steel”. Since the present application involves a semi-solid alloy, we refer to this mass or volume as a “slurry” billet and this is all clearly stated in the specification. It is simply impossible to read this definition on a continuous trickle of slurry that accumulates over time in the die cavity 70 before the casting process is ready to proceed.

For the Examiner to state that the claimed invention does not make any distinction between Brauer et al. and the instant process with respect to the manner of deposition strongly suggests that phrases such as:

- “slurry billet”
- “discharging said slurry billet”
- “directly and immediately”

have all been ignored. Brauer et al. never creates, never discloses, and never discharges a “slurry billet”. What Brauer et al. does is to provide a gradual trickle of slurry into the die cavity and this is clearly not “immediately”.

The foregoing remarks regarding Paragraph 4(b) are applicable to a great extent to the remarks made by the Examiner in Paragraph 4(c). Succinctly, the Examiner contends that a gradual, continuous trickle of slurry is a “slurry billet”. Whether we use the

definition provided by the specification or the dictionary definition, this statement by the Examiner is, politely, wrong. Brauer et al. does not create, does not disclose, and does not discharge a “slurry billet”.

In Paragraph 4(d), the Examiner contends that the idea of a “single shot” is not a part of the scope of the claims. It is hard to imagine that when the entire slurry billet is discharged directly and immediately into the shot sleeve that inherently this is not a “single shot”. Reference to the specification makes it clear that the slurry billet is a fixed volume sufficient in mass for the cast part and that this entire volume is discharged as a single mass, i.e., a “single shot” slurry billet.

If the addition of the modifying phrase “single shot” in front of “slurry billet” would resolve the issues regarding the rejected claims, then Applicants are willing to have the Examiner make this addition by Examiner’s Amendment in order to put all claims in condition for allowance.

Respectfully submitted,

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